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Tick bites and single-dose doxycycline as prophylactic treatment for Lyme disease

Based on the 2006 Infectious Disease Society of America guidelines

A full course of antimicrobial treatment, as used in the treatment of active Lyme disease (i.e., 10-14 days), is NOT recommended for prevention of Lyme disease after a recognized tick bite in the absence of clinical symptoms. A single dose of doxycycline (200 mg) may be offered to adult patients and to children ≥ 8 years of age (4 mg/kg up to a maximum dose of 200 mg) when ALL of the following conditions exist.

1. **The attached tick is a black-legged tick (deer tick, *Ixodes scapularis*).** Tick identification is most accurately performed by an individual trained in this discipline. However, black-legged ticks are very common in southeastern and central New Hampshire and there are many images available online to help in general identification.
2. **The tick has been attached for at least 36 hours.** This determination is most reliably made by an entomologist, but simply asking the patient about outdoor activity in the time before the tick bite was noticed can often lead to an accurate estimate of attachment time. Unengorged (unfed) black-legged ticks are typically flat. Any deviation from this “flatness,” which is often accompanied by a change in color from brick red to a gray or brown, is an indication that the tick has been feeding.
3. **Prophylaxis can be started within 72 hours of the time that the tick was removed.** This time limit is suggested because of an absence of data on the efficacy of prophylaxis for tick bites following longer time intervals after tick removal.
4. **Doxycycline treatment is not contraindicated.** Doxycycline is contraindicated in pregnant women and children less than 8 years old. The other common antibiotic treatment for Lyme disease, amoxicillin, should NOT be used for prophylaxis because of an absence of data on an effective short-course regimen for prophylaxis and the likely need for a multiday regimen and its associated adverse effects.
5. **The geographic site where the tick was acquired has a local black-legged tick infection rate with *Borrelia burgdorferi* of at least 20%.** Tick studies in New Hampshire between 2007-2010 suggest that greater than 20% of black-legged ticks in all NH counties are infected with *Borrelia burgdorferi*, with the exception of Coos county where there is insufficient data to estimate infection rates. A map showing tick data by county is available at: <http://www.dhhs.nh.gov/dphs/cdcs/lyme/publications.htm>

Note that single-dose doxycycline is not 100% effective for prevention of Lyme disease; consequently, patients who receive this therapy should monitor themselves for the development of Lyme disease as well as other tick-borne diseases including anaplasmosis and babesiosis.

Testing of ticks for tick-borne infectious agents is not recommended for guiding individual patient's prophylaxis or treatment decisions.